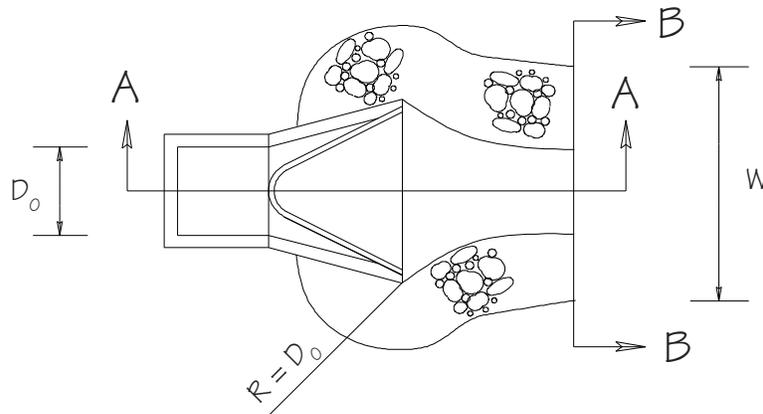
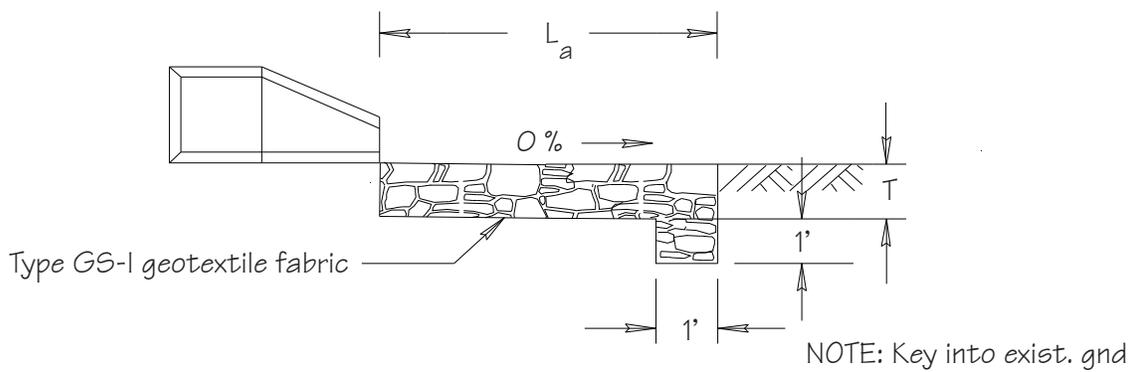


Standard Detail & Specifications

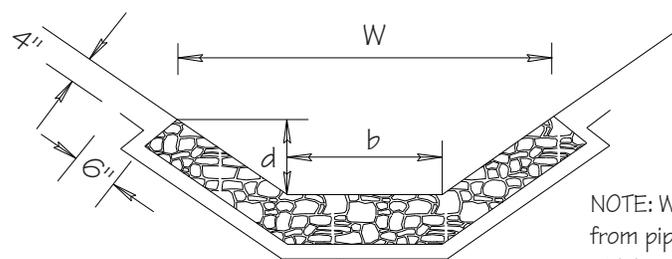
Riprap Outlet Protection - 2



Plan



Section A-A



NOTE: Width of bottom (b) to vary from pipe diameter or end section width to existing channel bottom at end of riprap apron.

$$T_w \geq 0.5 D_o$$

Section B-B

Source:

Adapted from
MD E&S Manual

Symbol:



Detail No.

DE-ESC-3.3.10.2

Sheet 1 of 2

Effective July 2023

Standard Detail & Specifications

Riprap Outlet Protection - 2

DATA

Pipe diameter (D_o)

Apron length (L_a)

Apron width (W)

Bottom width (b)

Riprap depth (d)

Riprap size (R No.)

Riprap thickness (T)

Construction Notes:

1. The subgrade for the riprap shall be prepared to the required lines and grades as shown on the plan. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
2. The riprap shall conform to the grading limits as shown on the plan.
3. Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged area. All connecting joints should overlap a minimum of 1 ft. If the damage is extensive, replace the entire filter cloth.
4. Stone for the riprap or gabion outlets may be placed by equipment. Riprap shall be placed in a manner to prevent damage to the filter cloth. Hand placement will be required to the extent necessary to prevent damage to the conduits, structures, etc.

Source:

Adapted from
MD E&S Manual

Symbol:



Detail No.

DE-ESC-3.3.10.2

Sheet 2 of 2

Effective July 2023